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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 09/807,497 | 07/09/2001 | Yau Wai Lucas Hui | 851663.421USPC | 9346 |
| 7590 | 06/17/2004 | | EXAMINER | |
| Gash, Eric J 701 5th Avenue Suite 6300 Seattle, WA 98104-7092 | | | DIEP, NHON THANH | |
| | | ART UNIT | PAPER NUMBER | |
| | | 2613 | S | |
| DATE MAILED: 06/17/2004 | | | | |

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|-----------------|------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 09/807,497 | LUCAS HUI ET AL. |
| Examiner | Art Unit | |
| Nhon T Diep | 2613 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on _____.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) _____ is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) _____ is/are rejected.
- 7) Claim(s) 6,8,9,16 and 19 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 09 July 2001 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

| | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>4; 11/19/2001</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: _____. |

DETAILED ACTION

Claim Objections

1. Claim 10 is objected to because of the following informalities: Claim 10 of the original application is dependent on claims 1, 2, 3 or 4; whereas, in the preliminary amendment of 2/14/2002 which it amended claims 11-17 and 1⁷~~9~~ (not to claim 10), claim 10 is rewritten as to be dependent on only claims 1, 2 or 3. To be consistent, the examiner, as of present, will examine claim 10 as to be dependent on claims 1, 2 or 3. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 1-5, 7, 12-1, 12-2-1, 12-3-2-1, 13-14 and 17 are rejected under 35 U.S.C. 102(e) as being anticipated by Suzuki (US 6,256,343).

Suzuki discloses a method and apparatus for image coding comprising the same method for determining motion vectors for encoding picture data in a sequence of pictures wherein data representing a picture in the sequence is arranged in a plurality of adjacent data blocks (col. 4, ln. 65 – col. 5, ln. 13), the method comprising the steps of: encoding a first picture in the sequence with motion vectors for the data blocks in the picture; generating respective local motion vectors for groups of adjacent data blocks in the first picture, wherein a local motion vector for each group of data blocks is generated according to the individual motion vectors of the data blocks in the group (fig.1 , el. 2, mv and fig. 3, el. 22 and col. 5, ln. 34-37); select a data block of an object to be coded (fig. 3); determining a window of search data from a reference picture on the basis of the corresponding position of the selected data block and the local motion vector which corresponds to the selected data block (col. 7, ln. 9-13); and comparing the selected data block with the search data from the reference picture in order to determine a motion vector for the selected data block (fig. 2, el. 24); local motion vector as a most common value of the motion vectors for the group (a most common value = minimum value: col. 7, ln. 9-13) as specified in claim 1, 12-1, 12-2-2, 12-3-2-1, 13 and 17; including repeating the steps (c), (d), and (e) for each data block in a group of adjacent data blocks in the object picture (col. 4, ln. 65-67) as specified in claim 2, including step (f) of generating a local motion vector from the motion vectors of data blocks in the group of data blocks in the object picture (fig.1 , el. 2, mv and fig. 3, el. 22 and col. 5, ln. 34-37) as specified in claim 3; each of the group of adjacent data block comprises a row of macroblocks from the respective picture (col. 4, ln. 65-67) as

specified in claim 4; the window of search data is of fixed size for a group of data blocks (fig. 3 and fig. 2, el. 24) as specified in claim 5; repeating the steps (c) through (f) for each data block and group of data blocks in the object picture (col. 4, ln. 65-67) as specified in claim 7; and reference picture is stored in a frame buffer (fig. 1, el. 9), the search window data in a search window cache memory and wherein motion vector detector is coupled to control transfer of data from the frame buffer memory to the search window cache memory on the basis of stored local motion vector (fig. 2, el. S9, 22-23-24) as specified in claim 14.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 10-1, 10-2-1, 10-3-2-1, 11-1, 11-2-1, 11-3-2-1, 15, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki.

As applied to claims 1, 2, or 3 above, it is noted that Suzuki does not particularly disclose that the local motion vector for a group of data blocks comprises an average of motion vectors or a median of motion vectors for the data blocks in the group as specified in claims 10-1, 10-2-1, 10-3-2-1, 11-1, 11-2-1, and 11-3-2-1. However, Suzuki does teach to use a minimum motion vector of the group to be a local motion vector and it is well known to one of ordinary skilled artisan that the choosing of a representative vector from a plurality of adjacent vectors can be often chosen as an

average vector or a minimum vector or a SAD vector and therefore, it would have been obvious to one of ordinary skilled in the art at the time the invention was made to modify the system of Suzuki by using an average vector as a local vector in stead of the minimum vector as a matter of designer's choice.

With regard to claims 15 and 18: As applied to claims 14 and 17 above, it is noted that Suzuki does not particularly disclose the generating of a local motion vector for each row of macroblocks in a picture as specified in claim 17; however, Suzuki teaches the using of a global motion vector (which represents larger area than a typical macroblock) and therefore, it would have been obvious to one of ordinary skilled in the art at the time the invention was made to modify the system of Suzuki by choosing a local motion vector for each of a row of macroblocks instead of each of a single macroblock. Doing so would help to simplify the computational process.

Allowable Subject Matter

6. Claims, 6, 8-9, 16 and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. Dufaux et al (US 6,295,377) discloses a combined spline and block based motion estimation for coding a sequence of video images.
- b. Ogawa (Us 6,310,920) discloses a moving picture encoding apparatus.

c. Ju (US 5,801,778) discloses a video encoding with multi-stage projection motion estimation.

d. Dorricott et al (US 5,526,053) discloses a motion compensated video signal processing.

e. Sun (US 6,014,181) discloses an adaptive step-size motion estimation based on statistical sum of absolute differences.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nhon T Diep whose telephone number is 703-305-4648. The examiner can normally be reached on m-f.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris S Kelley can be reached on 703 305-4856. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ND
11 June 2001



NHON DIEP
PRIMARY EXAMINER